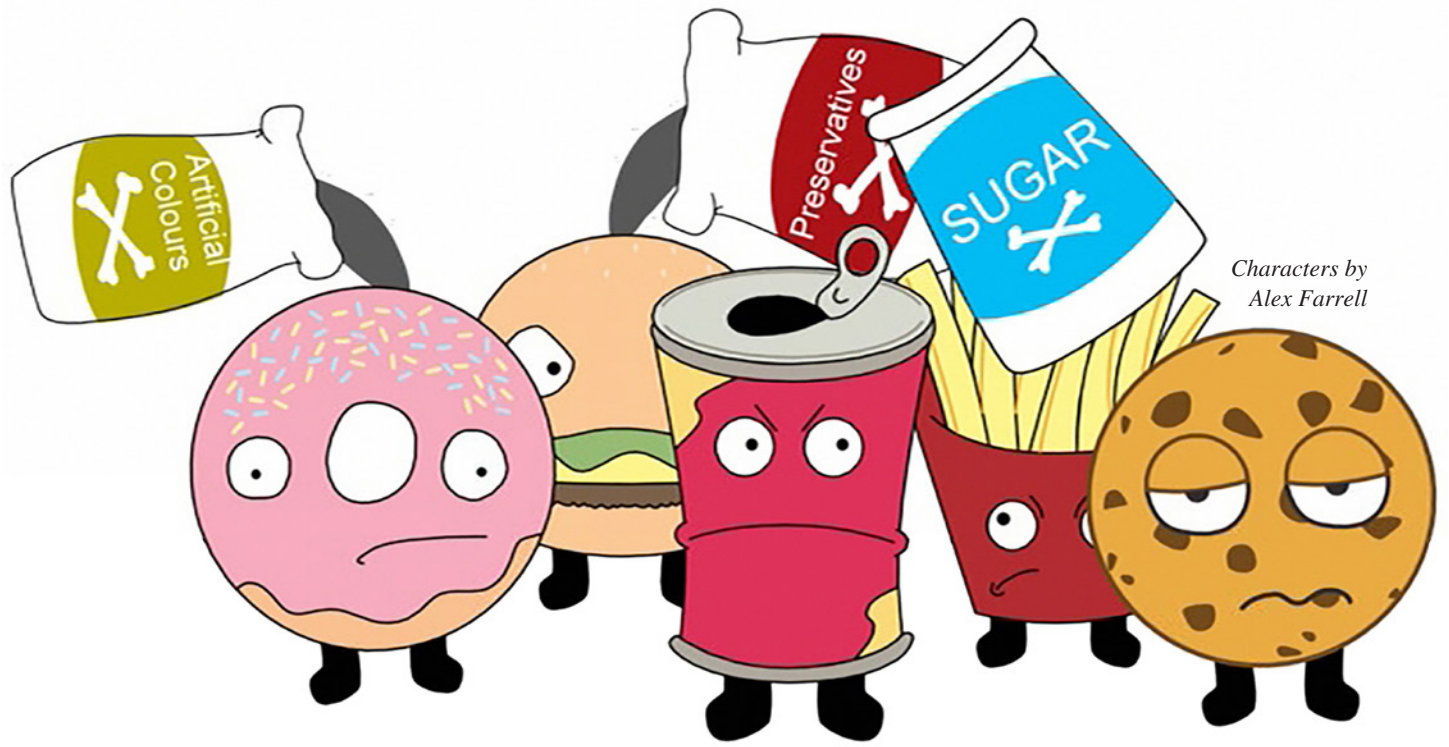


Characters by Alex Farrell

What to do about diet, decay and sleep disordered breathing in children

By Chris Farrell, BDS (Syd)



During the latter part of the 20th century, tooth decay among Australian children was in rapid decline. In the 1970s when I graduated from Sydney University, dental caries was present in the majority of children and the adult population expected the same edentulous retirement as their parents. Dentists extracted teeth as often as we restored them and Begg-trained orthodontists encouraged the extraction of even more healthy teeth. Dental education and the common perception teeth could last a lifetime did not exist.

The 1970s decline in dental caries can only be attributed to better education. While fluoride played a role, improved dental care and hygiene along with diet modification, driven by the dental profession, must be given credit.

Unfortunately, in recent decades, the frequency of dental decay has again started to increase, particularly in young children (Graph 1). Given that untreated tooth decay in children has the potential to cause infection as well as other more severe dental problems, such as space loss and orthodontic problems, this increase should be cause for concern. Additionally, estimates indicate dental decay is Australia's most expensive diet related disease[1] and dental caries is the single most common disease among children.[2]

Diet the key to lowering decay

Fortunately, while the prevalence of tooth decay has increased during the last two decades and is one of the main reasons children are admitted to hospital, the vast majority of dental disease is easily preventable. This then begs the question, *if it is easily preventable, why have Australian children experienced an increase in tooth decay?* Complacency and a decline in the number of children regularly brushing their teeth may play some part in this upwards trend.



Figure 1. MRC's breathing education program puts emphasis on correcting mouth breathing habits.

However, according to a study conducted by the London School of Hygiene and Tropical Medicine, which analysed the effect of sugars on tooth decay, sugars are the sole cause of tooth decay in children as well as adults.[3]

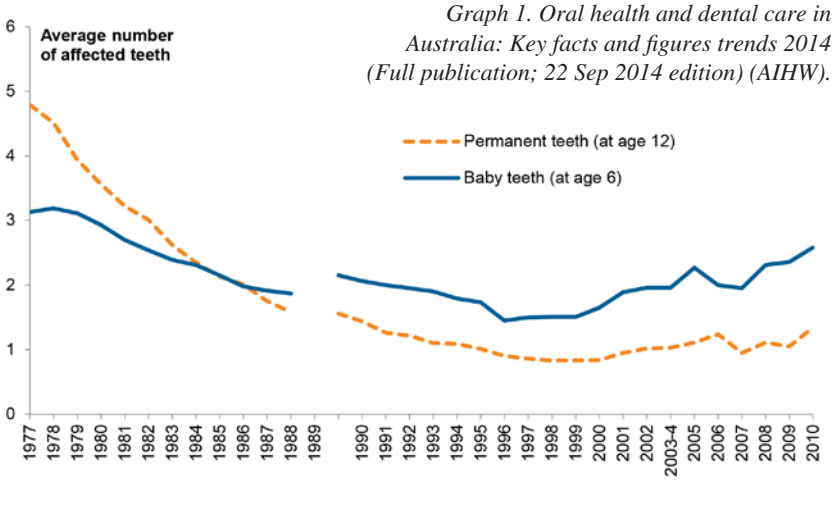
This suggests the modern child's diet and nutrition is the exclusive culprit behind recent increases in tooth caries. With their greater consumption of highly processed, high sugar content foods and lower consumption of whole foods, such as fruit and vegetables together with soft drinks, cordial and fruit juices replacing tap water,[4] it stands to reason that 21st century children will experience increased dental disease. Unfortunately, this decline in the quality of diet and nutrition is not only responsible for oral health issues; it is also causing a wide range of other health problems.

Childhood Sleep Disordered Breathing

In addition to diabetes and obesity, there is escalating recognition that poor modern diet and nutrition is responsible for upper airway dysfunction, which can in turn lead to sleep disorders such as obstructive sleep apnoea (OSA). There is concern that increasingly, modern children are experiencing and being diagnosed with upper airway dysfunction, which is resulting in Sleep Disordered Breathing.

This childhood Sleep Disorder Breathing has been recognised as causing widespread health, developmental and behavioural problems, including difficulty concentrating at school. As well as causing serious short-term health problems and poor quality of life later in adulthood, this paediatric Sleep Disordered Breathing is detrimental to the development of the face, jaws and teeth and can result in poor craniofacial growth and neuromuscular dysfunction.[5,6] Furthermore, the negative impact upper airway dysfunction has on the morphology of the jaws and dental arches in growing children[5] leads to malocclusion and further Sleep Disordered Breathing (SDB).[6]

Graph 1. Oral health and dental care in Australia: Key facts and figures trends 2014 (Full publication; 22 Sep 2014 edition) (AIHW).



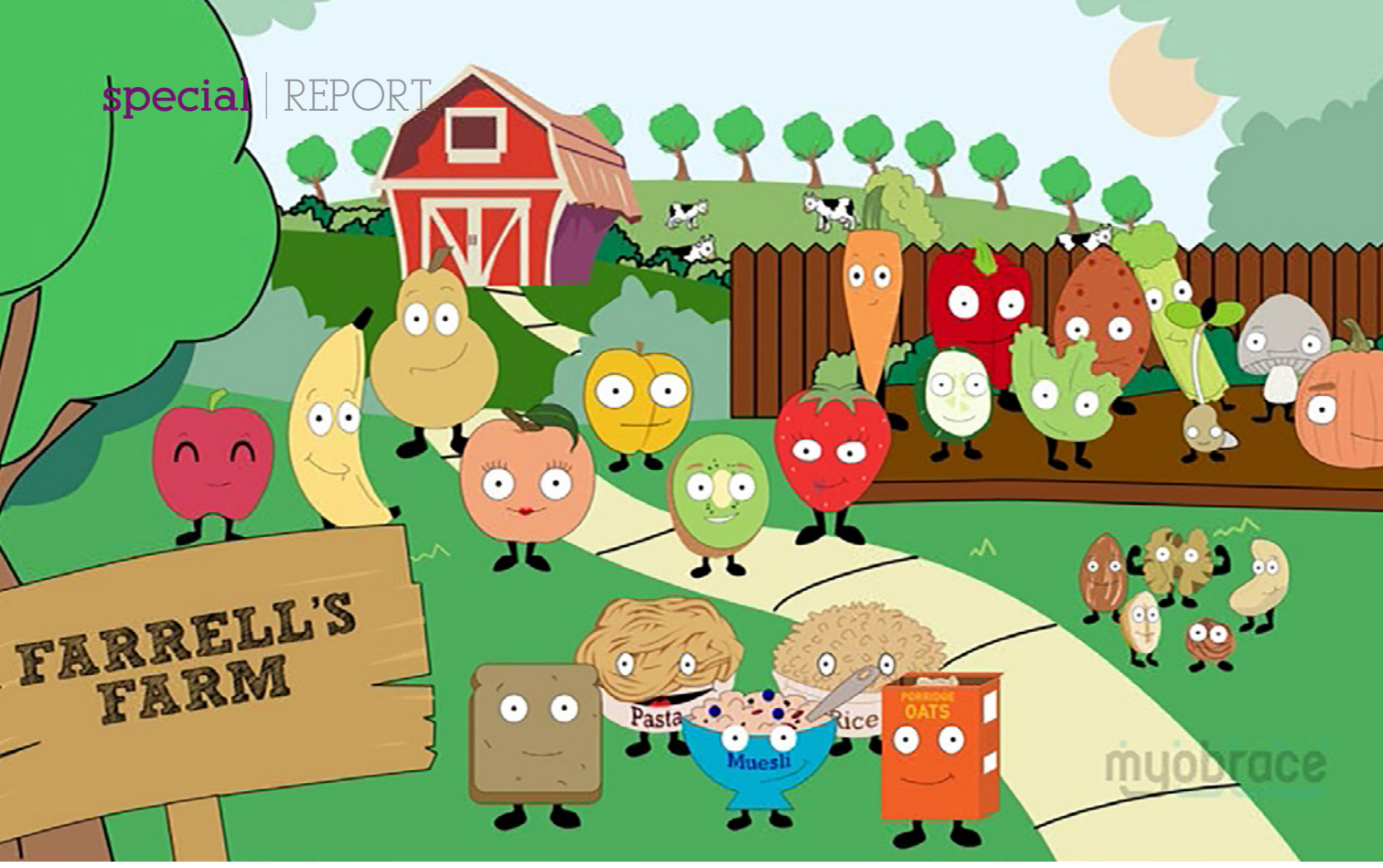


Figure 2. MRC's diet and nutrition program is designed to appeal to children (Graphics by Alex Farrell).

However, despite concern regarding this upward trend in dental caries as well as upper airway and neuromuscular dysfunction and the challenges this presents to the dental profession, there also exists an opportunity for 21st century dental professionals to provide real solutions for these issues. The dental, SDB and developmental issues associated with poor modern diet are preventable and well within the traditional scope of practice of the general dentist. In order to promote prevention, as was the case during previous eras of rampant tooth decay, education must play an essential role in reversing the trend.

Early intervention education

Myofunctional Research Co. (MRC) has recognised the vital role education must play in reducing dental disease as well as SDB and has integrated significant educational packages into the Myobrace Pre-Orthodontic and myOSA myofunctional sleep systems. These educational programs mean that in addition to correcting the symptoms of upper airway and neuromuscular dysfunction, MRC can directly educate patients regarding the causes of their tooth decay, malocclusion and SDB. This means that as well as providing treatment for their patients, dental and medical professionals who have integrated MRC systems into their practice are actively working towards prevention of further health problems.

Because a poor diet, high in processed foods as well as sugar and nutritionally deficient, is the sole cause of tooth decay in children and a major contributor to the upper airway and neuromuscular dysfunction causing malocclusion and SDB, MRC has developed an educational program designed to address this. By presenting digital video information in a format and context that can be easily understood and applied by children aged between 4 and 15, the MRC nutrition program helps children and their parents recognise why a balanced, healthy diet provides a vital component and building block for their overall wellbeing.

Once a patient's dietary and nutritional deficiencies have been addressed, upper airway and neuromuscular dysfunction can then be more effectively treated to correct malocclusion and SDB. MRC's patient education "apps" place a wealth of information regarding how to address then overcome the causes of their malocclusion and SDB in the hands of the patient. In addition to providing a series of physiotherapy exercises developed to help patients overcome their myofunctional shortcomings, the apps highlight why it is necessary to correct any poor habits. Through education, these apps empower patients to play an active role in their own treatment and provide the potential for superior treatment outcomes (Figure 1).

Educating the profession

In addition to patient educational packages and digital apps, MRC has carefully developed educational courses for medical and dental practitioners interested in integrating preventive or pre-orthodontic treatment systems into their practice. These training seminars provide information regarding MRC's education, appliance and practice management systems as well as how to diagnose then develop treatment plans targeted toward treating the upper airway and neuromuscular dysfunction causing malocclusion and SDB.

When taking into account the well-publicised oversupply of dentists and corporatisation of the industry along with diminishing returns, the possibility for modern dentists to offer preventive health solutions becomes particularly timely.



Figure 3. Child oriented education is an integral part of MRC's Myobrace® pre-orthodontic treatment.

In addition to maintaining a child's dental health, there exists an opportunity for dental professionals with a focus on education to enhance a young patient's facial development as well as long-term general health and quality of life. Preventive paediatric dentistry along with preventive or pre-orthodontic treatment, with an emphasis on empowering the patient through education offers the industry a growing, potentially lucrative new treatment avenue.

Because education offers a powerful tool for preventing poor oral health and correcting malocclusion as well as SDB, MRC is committed to providing the most advanced, up-to-date and engaging educational programs for patients, parents and professionals.

To find out how to begin implementing these programs as well as the Myobrace and myOSA myofunctional treatment systems into your practice, visit the courses section at myoresearch.com.

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About the author

Dr Chris Farrell graduated from the University of Sydney in 1971 with a Bachelor of Dental Surgery, having gained a comprehensive knowledge of traditional orthodontic treatment using the BEGG technique. As a result of his clinical experience, he became interested in TMJ/TMD disorder and after further research, discovered the etiology of malocclusion and TMJ disorder was myofunctional, which contradicted the established view of his profession. Dr Farrell founded Myofunctional Research Co. (MRC) in 1989 with the intent to develop a myofunctional orthodontic system targeted at treating the upper airway and neuromuscular dysfunction causing malocclusion. Dr Farrell's Myobrace® and Trainer treatment systems have proven extremely effective at providing early, preventive pre-orthodontic treatment and are now used by dental professionals in more than 100 countries.